

## GENETIC VARIATION OF KELAMPAYAN (*NEOLAMARCKIA CADAMBA*) TREES FOR PLANTED FOREST DEVELOPMENT IN SARAWAK

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### Abstract

*Neolamarckia cadamba* is now a commercially important plantation species, and is seen slowly but surely replacing other exotic species. Therefore, it is crucial that we have the tools to determine the genetic variation of *N. cadamba* that occurs in Sarawak, both for natural and planted populations. The objective of this study is to assess the genetic variation of *N. cadamba* from different areas in Sarawak by random amplified polymorphic DNA (RAPD) markers. To date, leaf samples from a total of 162 individual trees have been collected from five populations, namely: Matang, Sabal and Simunjan, Bintulu, Miri and Sibul. Total genomic DNA is isolated from the silica-gel-preserved leaf samples, and subsequently the isolated DNA is analysed using RAPD technique. The RAPD marker detects DNA variations that result in the loss or gain of DNA fragments at a particular location in the Kelampayan genome. These variations will help us determine genetic relatedness and diversity between different Kelampayan populations. The results of this study will provide a foundation in the selection of plus trees, establishment of forest seed production areas, and subsequently production of high quality seedlings for plantations with all the desirable characteristics in term of growth rate, bole form, wood density and disease resistance.

### INTRODUCTION

*Neolamarckia cadamba* (Roxb.) Bosser is a tree that can grow up to 45 m tall and having no branches for more than 25 m. The bole can measure to a diameter of up to 100 - 160 cm but normally less. The tree sometimes has small buttresses and a broad crown. The bark is gray, smooth in young trees, rough and longitudinally fissured in old trees. The characteristic of leaves are glossy green, opposite, simple more or less sessile to petiolate, ovate to elliptical (15 - 50 x 8 - 25 cm). The crown is umbrella shaped and the branches are characteristically arranged in tiers. *N. cadamba* is an early-succession species which grows best on deep, moist, alluvial sites, often in secondary forests along riverbanks and in the transitional zone between swampy, permanently or periodically flooded area (Joker 2000). All these characteristics add to the popularity of Kelampayan as a much sought after fast growing timber tree species.